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———. *Estudios sobre Culicoides (Diptera, Ceratopogonidae)* VII. *Culicoides dominicii* n. sp. y

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ENTOMOLOGY.—*Wenzella obscura*, a new genus and new species of flea from Guatemala (*Siphonaptera*).¹ ROBERT TRAUB, Lt. Col., MSC.²

The siphonapteran fauna of Guatemalan rodents, although of potential medical significance, is relatively little known. Among the excellent ectoparasites collected by a Chicago Natural History Museum expedition to Guatemala in 1948, is the remarkable flea here described as a new genus of the family Hystrichopsyllidae, subfamily Rhadinopsyllinae.

Wenzella, n. gen.

Diagnosis.—Differs from all known rhadinopsylline genera in each of the following characteristics: Pronotal comb lacking; antenna with a conspicuous flange (Fig. 1, *A.F.*) extending from base to near apex of club, ensheathing much of first two segments; lacking even vestiges of abdominal comb of spinelets on terga two through six; prosternosome without a sinus to receive the small first vinculum (*VC.1*); fourth vinculum distinct (Fig. 10, *VC.4*); male with three antensensillary bristles; male eighth tergum (Fig. 7, *8T.*) very large, inclosing much of genitalia; maxillary palpi (Fig. 1, *M.P.*) very long, extending to apex of foretrochanters, suggesting *Megarthroglossus* of Anomiopsyllinae.

Agrees with *Stenischia* Jordan, 1932, in that the lateral metanotal area is not set off as a distinct sclerite, and instead the metanotum extends as a downward-directed long vertical triangle between metepisternum and metepimere.³ Differs from other members of the subfamily (except *Trichopsylloides* Ewing, 1938) in lacking a genal ctenidium.

Description.—Caput integrecipitate, with internal but distinct tuberele (Fig. 1, *TB.*). Anterior

and dorsal margins of head evenly and very broadly convex, not rounded; in female, those margins straighter. Genal region (*GN.*) extending downward beyond mid-point of maxillary lobe. Head chaetotaxy reduced in number and size of bristles, which are not set in distinct rows; postantennal region with but one row of bristles, that marginal. Eye greatly reduced. Palpi (*L.P.*) 5-segmented, not extending beyond apex of forecoxae, much shorter than elongate maxillary palpi. Antenna peculiar in position and shape; although genus is integrecipitate in both sexes, in each sex the base of antenna is removed from crown of head (in other integrecipitate fleas, that of male is usually near top of head); antennal groove not definitely extending onto propleuron; first antennal segment directed anteriorly, almost horizontal, not pointing ventrad as is typical in other fleas; club almost rhomboidal, scarcely narrowed apically, its segments often partially fused, some reduced in size; club apparently consisting of seven or eight segments (actually nine present); with a conspicuous triangular flange. First vinculum (*VC.1*) relatively broad. Margin of prosternosome straight, unmodified at level of insertion of this vinculum. Tentorial bridge (*T.BR.*) unusual in being displaced caudad, near vinculum (overlapping in specimen drawn); vermiform. Pronotum with but one complete row of bristles, those short; comb completely absent. Mesonotum (Fig. 10, *MSN.*) with two rows of bristles, the first somewhat irregular; with a relatively long, well-developed phragma (*PH.2*); with two or three pseudosetae (*PS.S.*). Mesepisternum (*MPS.*) with anterior margin fairly straight. An internal furca (*I.F.2*) conspicuous, extending dorsad more than half height of mesepimere (*MPM.*). Mesepimere longer than broad (high), much longer than *MPS.* Mesosternosome (*MPS.* and *MPM.*) with chaetotaxy reduced to about four bristles. Metanotum (*MTN.*) with a distinctive beak-shaped conspicuous phragma (*PH.3*) (not as broad as that of mesonotum); with two rows of bristles; about

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³ In *Trichopsylloides* Ewing the metanotum is similarly downward-directed, but the lateral metanotal area is fairly well defined.

as long as mesonotum and about half again as long as pronotum (ignoring phragma). Sides of metanotum extending ventrad as a downward-pointing triangle, the altitude of the triangle about equal to that of rest of notum above it. Lateral metanotal area completely absent. Pleural arch absent. Lower margins of metanotum heavily sclerotized, as is posterior margin of metepisternum (*MTS.*). Metepisternum (*MTS.*) with anterior margin ventrally straight, its upper portion concave. With a conspicuous internal furca (*I.F.S.*) arising from base of *MTS.* Squamulum absent. Metepimere (*MTM.*) well developed, broader than long; lacking a striarium; chaetotaxy relatively reduced; apparently not fused with metanotum, although margins contiguous.

Metacoxa lacking the subapical patch of spiriforms or subspiniform bristles characteristic of the subfamily (also missing in *Trichopsylloides* Ewing, 1938, and in *Paratyphloceras* Ewing, 1940). Tibial comb absent. Profemur without thin lateral or mesal bristles. Fifth tarsal segment on each leg with four pairs of lateral plantar bristles, the apical pair somewhat reduced.

Typical terga with two rows of bristles. Second abdominal sternum without a striarium. With three antesensillary bristles (Fig. 7, *A.B.*) in each sex; the bristles relatively unmodified; the plate supporting these bristles unusual in being displaced from dorsal and caudal margins. Abdominal spiracles much longer than broad.

Male eighth tergum extending beyond base of clasper. Male eighth sternum very large, with many bristles. Movable finger (Fig. 9, *F.*) long and narrow, without spiniforms. Ninth sternum with distal arm (Fig. 7, *D.A.9* and fig. 5) bearing subspiniforms; proximal arm (*P.A.9*) weakly sclerotized. Aedeagus relatively unmodified; with pouch wall (Fig. 8, *P.W.*) lightly sclerotized. Anal stylet (Fig. 2, *A.S.*) of female with a long apical bristle and dorsal and ventral subapical bristles. Sensillum somewhat convex. Abdominal bristles (particularly those of male eighth sternum) set in prominent bases (Figs. 6 and 4).

Genotype: *Wenzella obscura*, n. sp. The genus is named for Rupert L. Wenzel, curator of insects, Chicago Natural History Museum, who has contributed very much to the study of ectoparasites and who organized and led the expedition which collected this exceptionally interesting flea.

Wenzella obscura, n. sp. (Figs. 1-11)

Types.—Holotype male and allotype female

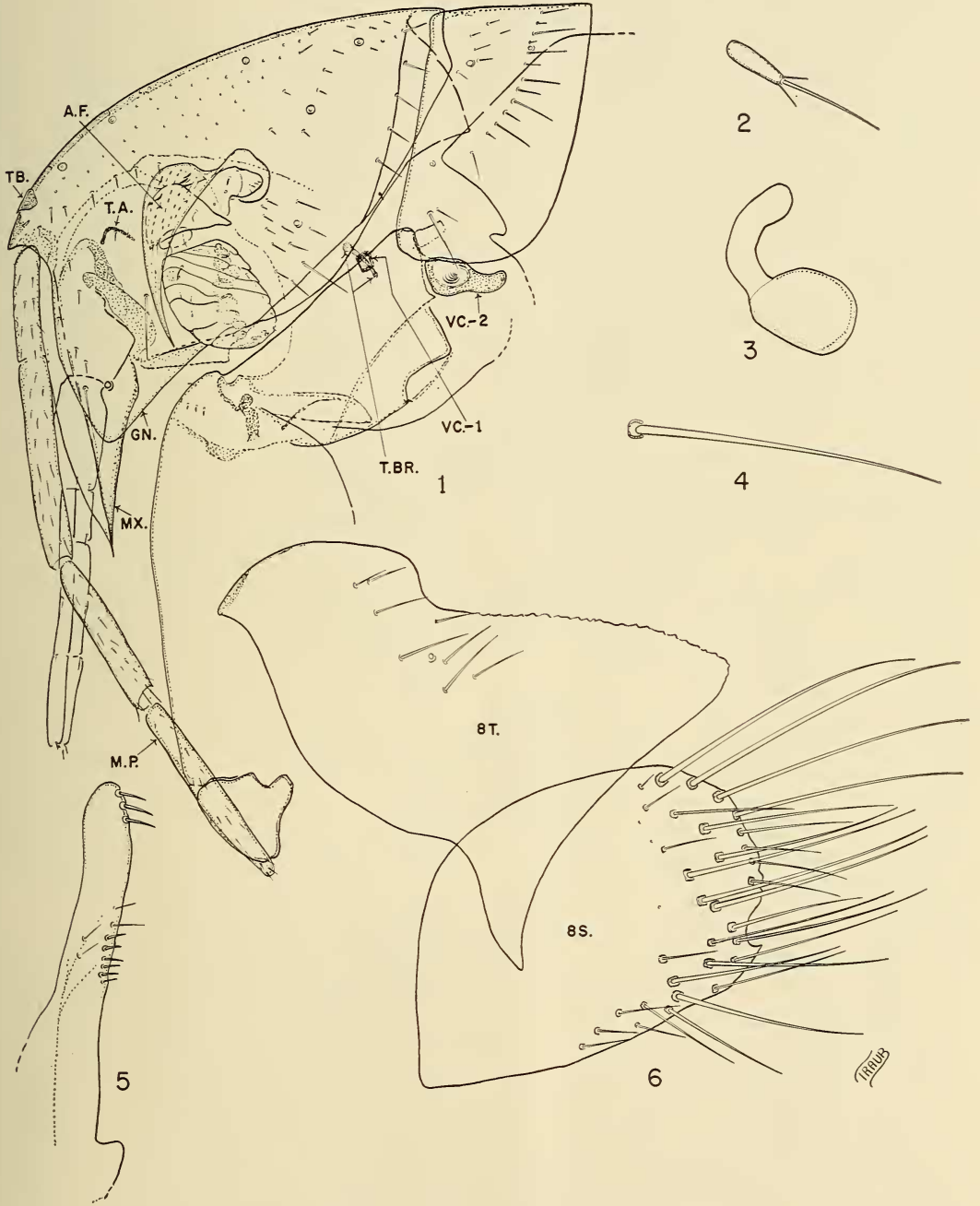
cc Heteromys d. desmarestianus Grey (family Heteromyidae), a spiny pocket mouse; Guatemala: Sacatepequez, 6 km west of Mixco; elevation, 6,900 feet; collected by R. Mitchell and L. de la Torre; June 26, 1948. Six male and five female paratypes with same data. Holotype and allotype deposited in collections of the Chicago Natural History Museum. Paratypes deposited in the United States National Museum; the British Museum (Tring); the Division of Entomology, Department of Agriculture, Ottawa, Canada; the Chicago Natural History Museum; and the author's collection.

Description.—HEAD, MALE (Fig. 1): Anterior margin of head a shallow arc; in female nearly straight so that head is almost pointed. Pre-antennal region with a vestige of a row of seven or eight rudimentary bristles or hairs extending from insertion of maxillary palpi to antennal groove; with an "ocular" row of two small bristles, one near antennal groove and the other ventromarginal; with about eight to ten thin hairs scattered on rest of genal area. Anterior arm of tentorium (*T.A.*) visible on each side as an angled vermiform structure. Eye absent. Maxillary lobe (*MX.*) extending to near apex of second segment of maxillary palpus (*M.P.*). Gena (*GN.*) conspicuous, produced downward as a flap on each side, extending to near midpoint of second segment of maxillary palpus. True genal lobe (at area of junction with antennal groove) inconspicuous. Second segment of maxillary palpi about twice the length of first, larger than third, and subequal in length to fourth, which extends to about apex of foretrochanters. The labial palpi weakly sclerotized, extending to about apex of forecoxae. Postantennal region with very small thin vestigial bristles or hairs, pattern suggesting vestigial rows arranged 4-5-5, those of last row longest although still small; in addition, a patch of about 11 similar bristles near antennal groove; longest postantennal bristle at ventrocaudal angle. First segment of antenna with three to five tiny hairs at base and three or four scattered marginal hairs. Second segment bonnet-shaped, with one or two lateral bristles and a marginal row of hairs; the segment directed ventrad. Club of antenna rhomboidal but with ventral margin slightly convex apically; club about three-fourths as broad as long; with nine compact segments partially fused so that joints are inapparent, appearing to have merely seven or eight segments. Antennal flange covering most of second segment and extending beyond midpoint of club. First

vinculum or link plate (VC.1) less than twice as long as broad, anterior and posterior margins more sclerotized than remainder of link plate.

THORAX: Pronotum with first row of bristles

shorter than second, extending down to about mid-point of segment. In addition, with two bristles near anteroventral angle. In each sex, prosternosome with an indication of a sinus for



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FIG. 1.—Head and prothorax, male. FIG. 2.—Anal stylet. FIG. 3.—Spermatheca. FIG. 4.—Bristle of male eighth tergum. FIG. 5.—Distal arm of male ninth sternum. FIG. 6.—Eighth tergum and eighth sternum, male.

receipt of antennal club. Mesonotum (Fig. 10, *MSN.*) three-fourths as long as broad, excluding the conspicuous, cephalad-directed phragma (*PH.2*); mesonotal phragma triangular, its anterior margin extending down to ventral sixth of notum and then with base of triangle emarginate; with two rows of bristles, anterior row short and terminating near level of anterior lucodisc (*LD.*); posterior row terminating above second lucodisc. Mesonotal flange with three pseudosetae (*PS.S.*) per side, all inserted above mid-point. Mesepisternum (*MPS.*) with one bristle near ventro-caudal angle. Mesepimere (*MPM.*) with three bristles, two of these ventral, the third above insertion of third vinculum (*VC.3*). Internal furca (*I.F.2*) of mesosternum irregular, relatively conspicuous, arising caudad to mesosternal rod; broad at base; apically narrow; extending dorsad to level of spiracle. Metanotum (*MTN.*) with two rows of bristles, the first short; about two-thirds as long as broad (measured at maximum, including breadth or height from dorsal margin to apex of ventral triangular extension); phragma of metanotum (*PH.3*) beak-shaped, about as long as broad; without indication of a lateral metanotal sclerite; apical spinelets absent. Mesepisternum (*MPS.*) with a caudomarginal bristle near mid-point; this margin heavily sclerotized. Internal furca (*I.F.3*) of metasternum well developed, vertical, extending about one third height of segment, narrowed above proximal third. Metepimere (*MTM.*) somewhat rhomboidal, but caudal margins slightly sinuate, very broad, i.e., breadth (height) greater than metanotum; with four bristles, two near bullet-headed spiracle, remaining two median. Fourth vinculum (*VC.4*), or link plate, vermiform.

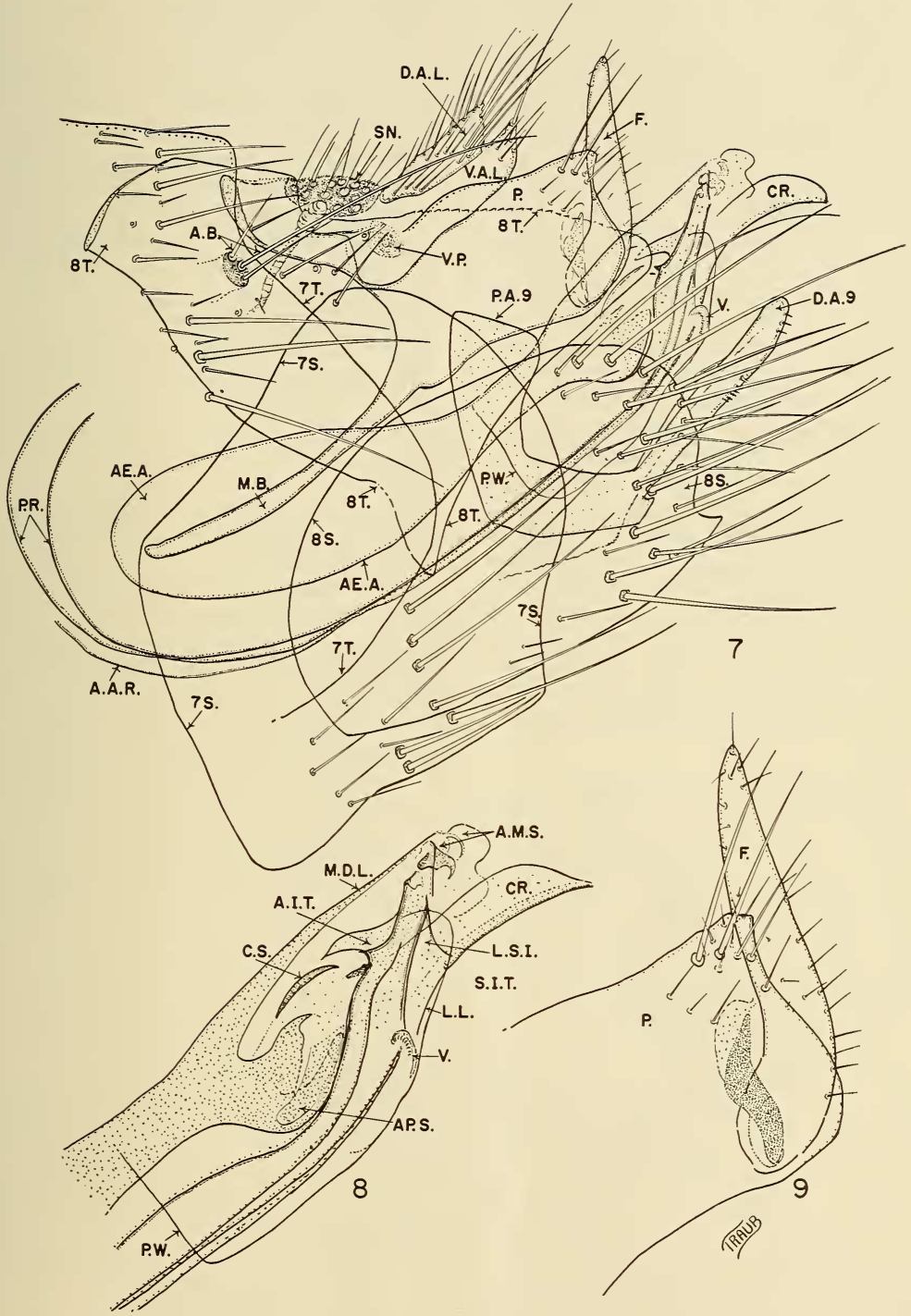
LEGS: Forecoxa with thin scattered lateral bristles from base to apex. Mesocoxa with basal two thirds naked; apical third with a few lateral submarginal stout bristles. Metacoxa similar to mesocoxa but with a few thin submarginal hairs on proximal two thirds. Femora with three ventromarginal bristles near apex. Tibia with a row of thin bristles flanking the stout dorsomarginal ones; these last stout bristles arranged 1-2-1-2-2-3 on all legs. Apical bristle of first segment of metatarsus reaching to apex of second; one apical bristle of second segment reaching to apex of third. Tarsal claws long and narrow; fifth tarsal segment with fourth lateral plantar bristles thinner and shorter than others; the fifth plantar bristle represented by a hair. Measurements (in

microns) of tibiae and segments of tarsi (petiolate base deleted) of holotype are as follows:

Leg	Tibia	Tarsal Segments				
		I	II	III	IV	V
Pro-	125	60	50	40	35	80
Meso-	190	120	75	50	35	90
Meta-	225	200	125	70	40	100

ABDOMEN: First tergum (Fig. 10, *1T.*) with two rows of bristles, at times with an additional subdorsal bristle preceding the first row; first row extending to about mid-point of tergum; second row longer; with vestiges of two apical spinelets on flange; with a beak-shaped phragma (*PH.-1T.*) one and one-half times as long as broad at base; with two or three ventromarginal bristles. Basal sternum lacking a striarium; with a ventromarginal row of four to six or eight small bristles; other unmodified sterna with a row of six to eight long thin bristles preceded by three or four rows of shorter bristles: in instance of second sterna these anterior bristles irregularly arranged. Typical terga with two rows of bristles, the second row extending slightly below the sublanceolate spiracle, the anterior row somewhat shorter. Antesensillary (antepygial) bristles long and narrow in both sexes, relatively unmodified and resembling normal tergal bristles; in male (Fig. 7, *A.B.*) middle bristle almost thrice length of upper bristle; about twice length of lower; in female (Fig. 11, *A.B.*) about twice length of uppermost but ventral one three-fourths length of middle bristle. Plate bearing antesensillary bristles displaced ventrad from dorsal margin a distance equal to length of dorsal bristle; displaced anterior of caudal margin a distance subequal to breadth of plate. Plate displaced even further in female.

MODIFIED ABDOMINAL SEGMENTS, MALE (Fig. 7): Setal bases of abdominal bristles pronounced, heavily sclerotized. Eighth tergum (*8T.* and Fig. 6) extending caudad beyond base of digitoid and ventrad to level of base of distal arm of ninth sternum; with about eight small thin bristles near and below subovate spiracle; dorsal margin slightly crenulate from sensillum to near apex; with anterior and posterior margins convergent and meeting in a triangular extension; anterior margin doubly sinuate; posterior margin slightly concave. Eighth sternum (*8S.* and Fig. 6) large, extending dorsad to near apex of proximal arm of ninth sternum and caudad to middle of distal



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FIG. 7.—Modified abdominal segments, male. FIG. 8.—Apical portion of aedeagus. FIG. 9.—Immovable process and digitoid of clasper.

arm of ninth sternum; dorsal margin convex; caudal margin with a subventral sinus; with approximately 21 marginal and submarginal long bristles from base to apex; in addition, with six smaller ventromarginal bristles; long bristles on eighth sternum with setal bases even more heavily sclerotized than on other segments (Fig. 4).

Immovable process of clasper (*P.* and Fig. 9) broad, extending to about mid-point of digitoid (*F.*); apex broadly rounded or subtruncate; caudal margin sinuate; with three fairly long subapical bristles and about six small mesal subapical bristles; with about three caudomarginal bristles; two or three small thin mediolateral bristles proximad of subapical patch. Movable finger or digitoid (*F.*) long and narrow, about five times as long as broad at midpoint; apex subacuminate; caudal margin fairly straight, except where curving at base; anterior margin sinuate, curving caudad apically and at base curving rather sharply anteriorly; with a small thin apical bristle and a caudomarginal row of about 12 small thin bristles extending to near base, but with a gap from apical two thirds to near apex. With two or three similar subapical bristles and with a few small anteromarginal or submarginal bristles extending from below midpoint to near apex. Manubrium (*MB.*) long and narrow.

Ninth sternum weakly sclerotized for most of its length and hence difficult to see clearly except for apex of distal arm; proximal arm of ninth sternum (*P.A.9*) broad, apically truncate. Distal arm of ninth sternum (*D.A.9* and Fig. 5) longer than proximal arm and apically much narrower; apex with three caudomarginal supspiniforms; with a group of about five or six similar caudomarginal subspiniforms at apical two thirds; with two short thick bristles distad of proximal patch.

Aedeagal apodeme (Fig. 7, *AE.A*) about three and one-half times as long as broad; proximal spur and apical appendage absent. Median dorsal lobe (Fig. 8, *M.D.L.*) straight. Sclerotized inner tube (*S.I.T.*) fairly straight and unspecialized, its armature represented as a weakly sclerotized winglike expansion. Apicomedian sclerite (*A.M.S.*) on each side of *S.I.T.* consisting of two portions: a proximal short, caplike sclerite and a large apical weakly sclerotized, somewhat dumbbell-shaped structure. Lateral sclerotization of inner tube (*L.S.I.*) ill-defined. Crochet (*CR.*) consisting of a large troughlike sclerite extending well apicad of inner tube; dorsal margin slightly convex, parallel to ventral margin for most its

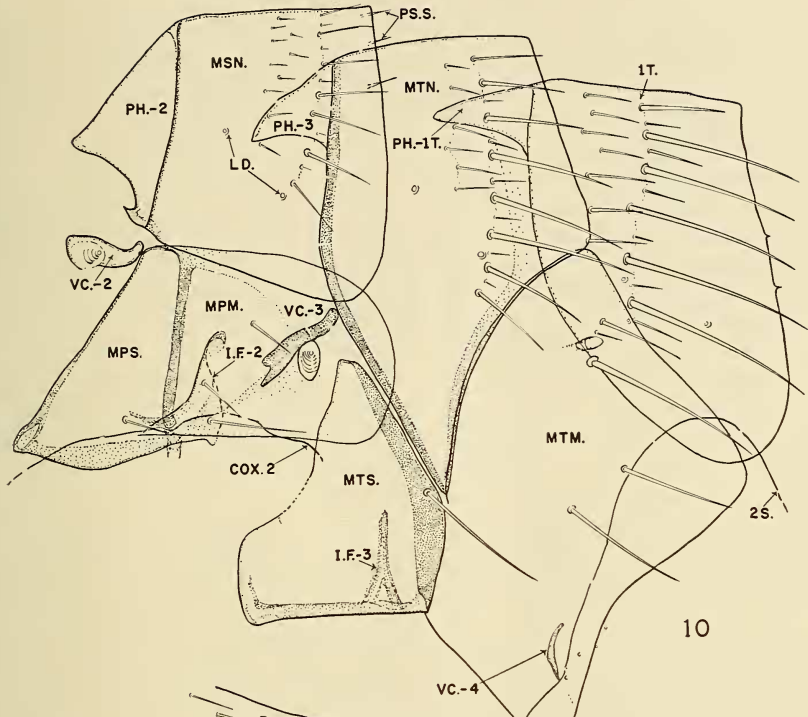
length, but crochet subapically narrowing; ventral margin relatively heavily sclerotized. Lateral lobes (*L.L.*) narrow and extending to near apex of *S.I.T.*, apparently an undifferentiated portion of the semimembranous pouch wall (*P.W.*). Crescent sclerite (*C.S.*) well developed. Penis rods (*P.R.*) not fully coiled. Aedeagal apodemal rod (*A.A.R.*), the third penile rod, arising from the base of the almost invisible pouch wall. Vesicle (*V.*) fairly well developed. Apodemal strut (*AP.S.*) of usual type but sclerites not differentiated.

Tenth segment conspicuous; sensillum (Fig. 7, *SN.*) with about 12 pits per side. Dorsal anal lobe (*D.A.L.*) relatively well sclerotized, covered with bristles, those at apex long. Ventral anal lobe (*V.A.L.*) with long apical bristles, its outlines semimembranous for the most part. Proximal ventral sclerite of proctiger (*V.P.*) fairly well indicated.

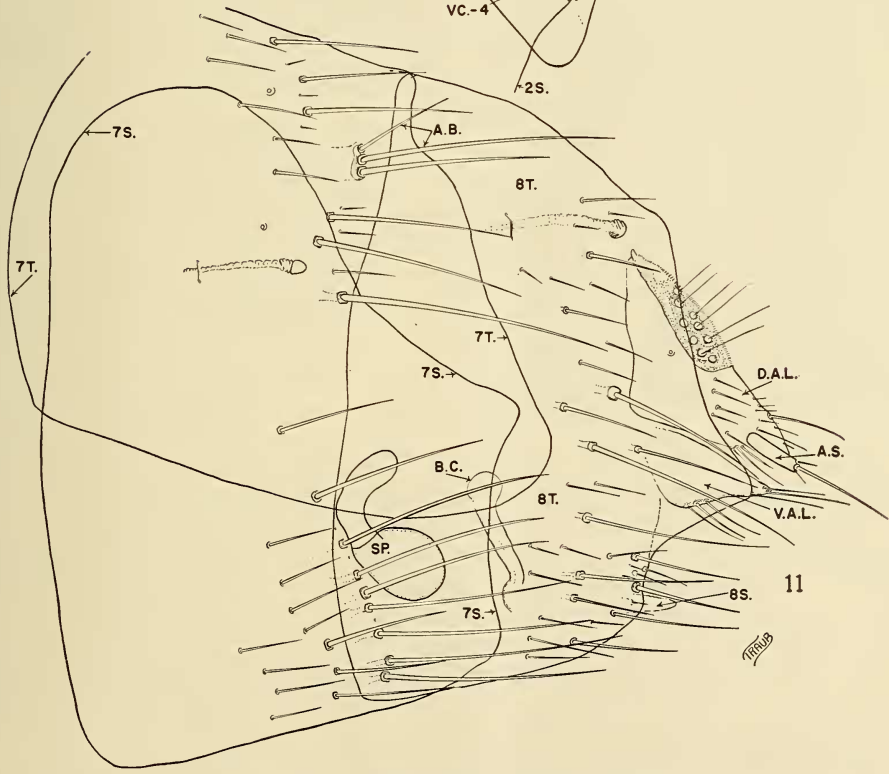
MODIFIED ABDOMINAL SEGMENTS, FEMALE (FIG. 11): Seventh sternum (*7S*) with caudal margin produced into a blunt lobe; below this, margin evenly convex; with four rows of bristles arranged approximately 4-8-9, those of last row very long. Seventh tergum (*7T.*) emarginate at level of the plate of the antesensillary bristles, which are displaced slightly more ventrad. Eighth tergum (*8T.*) very large, with two irregular rows of long thin bristles ranging from above spiracle to ventral margin; with about four long additional submarginal bristles near ventral sinus; posterior margin markedly produced caudad at level of ventral anal lobe. Eighth sternum (*8S.*) vestigial. Dorsal anal lobe (*D.A.L.*) with about eight mediolateral bristles and a fringe of dorsal bristles; with a longer bristle at ventrocaudal angle. Ventral anal lobe (*V.A.L.*) not heavily sclerotized, ventral margin sinuate; with about three or four long thin bristles near anteroventral angle and one or two subapical bristles. Anal stylet (*A.S.* and Fig. 2) about three times as long as broad, with long apical bristle and two shorter subapical ones. Spermatheca (*SP.* and Fig. 3) with tail slightly longer than head, upturned. Head somewhat longer than broad; subpyriform. Bursa copulatrix (*B.C.*) fairly well developed, globose, its duct rather short.

DISCUSSION OF THE STATUS OF THE GENUS WENZELLA

As will be seen from the diagnosis, *Wenzella* differs greatly from other members of the subfamily (i.e., *Nearctopsylla* Rothschild, 1915, *Corypsylla* C. Fox, 1908, *Para-*



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FIG. 10.—Mesothorax and metathorax and first abdominal tergum, male.

FIG. 11.—Modified abdominal segments, female.

typhloceras Ewing, 1940, *Trichopsylloides* Ewing, 1938, *Stenischia* Jordan, 1932, *Rhadinopsylla* Jordan and Rothschild, 1912, and *Rectofrontia* Wagner, 1930⁴). Certain of these differences are shared by genera in other subfamilies and these are thought to be due to convergent evolution. Thus, the elongate maxillary palpi suggest *Megarhroglossus* (subfamily Anomiopsyllinae). The new genus resembles *Anomiopsyllus* Baker, 1904, in the loss of pronotal and genal ctenidia as well as in the marked reduction in size and numbers of the head bristles. These adaptations are characteristic of fleas which ordinarily are restricted to the nests of the host (1, 2). The caudal displacement of the tentorial bridge (Fig. 1, *T.BR.*) is also suggestive of *Anomiopsyllus*. In *Rectofrontia* and allies, as in most fleas, the bridge arises at the level of the anteroventral portion of the antennal groove.

In its possession of a well-developed fourth vinculum (*VC.4*), *Wenzella* resembles the neopsylline and pygiopsyllid fleas. The absence of a sinus to receive the first vinculum is also characteristic of these last two groups of fleas. Nevertheless, the taxonomic assignment of *Wenzella* is clearly indicated by the possession of the following characters: fusion of the segments of the antennal club; at least one of the internal rods of the meso- and metacoxae is cut short, interrupted or abbreviated; the large vertical internal furca of the mesosterna and metasterna; the fusion of the lateral metanotal area with the metanotum. The subfamily Neopsyllinae includes fleas which differ in important details from *Wenzella* as follows: male antennal club unmodified, and also extending well onto propleuron (along with corresponding fossa); inner surface of hindcoxa with a patch of spiniforms or small bristles; aedeagus with a very well developed, long, broad pouch; characteristically possessing a striarium on second abdominal segment. The Pygiopsyllidae are essentially Australasian fleas, although one genus is known to occur in South America. In this group the genitalia are of

⁴ *Micropsylloides* Ewing, 1938, *Ratipsylla* Ioff, 1946, *Actenophthalmus* C. Fox, 1925, and *Micropsylla* Dunn, 1923, are considered to be synonyms of *Rectofrontia* and at best are subgenera. G. H. E. Hopkins, of the British Museum (Tring), has independently expressed a similar opinion about these genera of the Rhadinopsyllini.

a very different type, the sensilium is markedly convex, and there is no frontal tubercle. For these reasons the genus *Wenzella* is best placed in a new tribe of Rhadinopsyllinae characterized as follows:

Wenzellini, n. tribe

Clypeal tubercle internal. Integrecipitate, but the antennal groove removed from crown of head in both sexes. First vinculum not received in a distinct sinus of prosternum. Fourth vinculum present. Metepimeral striarium absent. Lacking a striarium on second abdominal segment. Inner side of hindtarsi virtually nude, lacking a patch of spiniforms or short bristles. Lateral metanotal area absent, the huge metanotum extending down between upper half of metepisternum and metepimere.

ACKNOWLEDGMENTS

I am very grateful to Dr. Karl Jordan, F. R. S., of the British Museum (Tring), who verified the status of this unusual flea, and to Miss Phyllis T. Johnson, of the Department of Entomology, Army Medical Service Graduate School, Washington, for critical review of the manuscript.

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LIST OF ABBREVIATIONS

- | | |
|--------|--|
| A.B. | antesensiliary bristle. |
| A.F. | antennal flange. |
| A.A.R. | third aedeagal rod (accessory apodemal rod). |
| A.M.S. | apicomedian sclerite. |
| A.S. | anal stylet. |
| AE.A. | aedeagal apodeme. |
| AP.S. | apodemal strut of aedeagus. |
| B.C. | bursa copulatrix. |
| C.S. | crescent sclerite. |
| CR. | crochet. |
| D.A.L. | dorsal anal lobe of proctiger. |
| D.A.9 | distal arm of male ninth sternum. |
| F. | movable finger or digitoid of clasper. |
| GN. | gena. |
| I.F.2 | internal furca of mesosternosoma. |
| I.F.3 | internal furca of metasternosoma. |
| L.L. | lateral lobe of aedeagus. |
| L.P. | labial palpi. |

L.S.I.	lateral sclerotization of inner tube.	PH.-1T.	phragma of first abdominal tergum.
L.D.	lucodisc.	PS.S.	pseudosetae.
M.D.L.	median dorsal lobe of aedeagus.	S.I.T.	sclerotized inner tube of aedeagus.
M.P.	maxillary palpi.	SN.	sensillum.
MB.	manubrium.	SP.	spermatheca.
MPM.	mesepimere.	T.A.	anterior arm of tentorium.
MPS.	mesepisternum.	T.BR.	tentorial bridge.
MSN.	mesonotum.	TB.	frontoclypeal tubercle.
MTM.	metepimere.	V.	vesicle of aedeagus.
MTN.	metanotum.	V.A.L.	ventral anal lobe of proctiger.
MTS.	metepisternum.	V.P.	subanal sclerite.
MX.	maxillary lobe.	VC.1	first vinculum or link plate.
P.	immovable process of clasper.	VC.3	third vinculum or link plate.
P.A.9	proximal arm of male ninth sternum.	VC.4	fourth vinculum or link plate.
P.R.	penis rod.	7S.	seventh sternum.
P.W.	wall of aedeagal pouch.	7T.	seventh tergum.
PH.2	phragma of mesonotum.	8S.	eighth sternum.
PH.3	phragma of metanotum.	8T.	eighth tergum.

ORNITHOLOGY.—*A taxonomic study of the American dunlin (Erolia alpina subsp.).* W. E. CLYDE TODD, Carnegie Museum, Pittsburgh, Pa. (Communicated by Herbert Friedmann.)

The red-backed sandpiper, or dunlin, like certain of its affines, is circumboreal and Holarctic in its breeding range; unlike many of them, however, it does not retire into the Southern Hemisphere for the winter, but spends that season in more temperate climes. A common and well-known shorebird, it received its specific name *alpina* from Linnaeus in 1758. Obviously, it must have been one of the species he himself observed on his trip to Lapland in 1752, since he quotes no other authority. In 1766, however, failing to identify his bird with Brisson's "l'Alouette de Mer," he redescribed the latter as *Tringa cinclus*. Meyer and Wolf's *Tringa variabilis* (1810) made a third designation for the same species, and the vast majority of the Old World references, as listed by Sharpe (1896), Ridgway (1919), and others fall under one or the other of these three names. In view of the seasonal changes to which the species is subject, and which were imperfectly understood in those early days, considerable allowance must be made for this duplication. It was some years before these supposed species were recognized as identical and the later names discarded. In the meantime two additional forms of the group had been described: *Tringa schinzi* by C. L. Brehm (1822) from the shores of the Baltic Sea

and *Scolopax sakhalina* by Vieillot (1816) from Sakhalin Island, but the latter was not recognized as pertinent until Buturlin (Auk 21: 53. 1904) called attention to it. The form *schinzi*, although accepted by many authorities, was discounted by Sharpe (1896), who rightly considered it merely a geographical variant. From the material examined in this connection (11 specimens from Holland and Sweden) it appears to be an easily recognizable race, characterized by its smaller size and heavier breast-streaking as compared with true *alpina*. It breeds in the British Islands and in corresponding latitudes in Holland and the Baltic Sea countries—far to the southward of the normal range of true *alpina*.

In due course the known range of the species was extended by various American authors, beginning with Wilson in 1813. No distinctions were admitted between the European and American birds until 1858, when Cassin drew attention to the larger size and disproportionately longer bill of the latter, which he thereupon christened *americana*, but without designating a type specimen. The name was accepted by most American writers, although latterly only in a subspecific sense. A few years later (1861) Coues discussed a supposedly larger race from the Pacific coast, which he provisionally